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EXAMINER

PATEL, JAY P

ART UNIT	PAPER NUMBER
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2666

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/920,980

Applicant(s)

ALEX ET AL.

Examiner

Jay P. Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On Page 6 line 23 the word "and" should be deleted.

Appropriate correction is required.

Claim Objections

2. Claim 13 objected to because of the following informalities: Claim 13 recites an acronym PDSN. This acronym should be spelled out at least once in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 5, 6, 9-11, 13, 14, 17-19, 21-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Leung et al. (U.S. Patent 6466964 B1).

5. Regarding claim 1, Leung discloses A method for establishing a connection with a mobile node, the method comprising:

Receiving a registration request (column 2 lines 7-10). The foreign agent relays a registration request from the mobile node to the home agent. It is inherent that if the

foreign agent relays the registration request, it has to receive the registration request itself.

Determining a tunnel identifier (column 2 lines 45-47). It is explicitly stated that the forwarding mechanism implement by the home and foreign agent is referred to as “tunneling”. Therefore, Leung anticipates determination of a tunnel ID.

Transmitting the registration request to a home agent, the registration request including the tunnel identifier (column 2 lines 7-10 and lines 45-47 and column 7 lines 65-67 continued onto column 8 lines 1-4). When the node is authenticated at the foreign agent, an authentication extension is attached to the registration request for forwarding to the home agent. Since the forwarding mechanism used between the home and foreign nodes is “tunneling”, it is inherent that the transmission of the registration request includes the tunnel ID.

Receiving a response to the request and, responsively, activating a connection (column 2 lines 7-10 and column 8 lines 24-28). Since the foreign agent acts as a relay point for registration purposes, it can also receive registration reply from the home agent. Furthermore, if the authentication process is successful, the connection between the home agent and the mobile node can be established.

Receiving data packets from the home agent in response to the transmitting the registration request, the data packets including the tunnel identifier (column 2 lines 7-10 and column 8 lines 24-28). The foreign agent can receive packets from the home agent and if the authentication process successful once again the tunnel is established and the forwarding of packets can take place.

Identifying the connection using the tunnel identifier and routing the packets along the connection (column 13 lines 30-35). The foreign agent has a visiting table which includes the respective IP addresses of the node, the home agent and an interface with specifies the tunnel and therefore a connection is established and routing of packets can take place.

6. In regards to claim 2, the registration request and reply packets include a Mobile-Home Authentication Extension that includes a type field (column 8 lines 32-38). The type field includes the type of extension and since the forwarding mechanism between the home and foreign agents is tunneling (column 2 lines 45-47), it is anticipated that the type field has some form to identify the specific tunnel.

7. In regards to claim 3, the foreign agent has a visiting table that includes the respective IP addresses of the node, the home agent and an interface with specifies the tunnel (column 13, lines 30-35).

8. In regards to claim 4, the home agent includes a mobility binding table (column 16 lines 20-23) and routing table that includes a node IP address and a next hop router IP address (column 16 lines 42-48). The next hop router IP address corresponds to the router that the packet should be forwarded to. The mobility-binding table includes a tunnel interface. It is inherent that the two tables can interact with each other and therefore, the tunnel interface can identify a route for the packet.

9. With regards to claim 5, Leung discloses a method for establishing a connection with a mobile node, the method comprising:

Receiving a registration request from a mobile node, the mobile node having a home agent, the registration request also representing a call (column 2 lines 8-12). The foreign agent relays registration request from the mobile node to the home node. The foreign agent and the home agent negotiate the conditions of attachment of the mobile node to the foreign agent. Furthermore, if the mobile node happens to be well known device such as a cellular phone, the registrations request will be implemented through a call.

Assigning a tunnel identifier to the call associated with the registration request (column 2 lines 45-47). It is explicitly stated that the forwarding mechanism implement between the home and foreign agent is referred to as "tunneling". Therefore, Leung anticipates assigning a tunnel ID.

Forwarding the registration request to the home agent, the request including the tunnel identifier (column 2 lines 7-12 and lines 18-20 and column 13 lines 30-36). The foreign agent updates a "visitor's table" in regards to the mobile node. The visitor's table has the IP addresses of the mobile node and home agent and an interface that specifies the tunnel used for forwarding packets.

Establishing a connection (column 2 lines 36-47). If another mobile device wishes to communicate with the mobile node attached to the foreign agent, it addresses the message to the IP address of the mobile node in the home agent. The home agent forwards the packet to the mobile node in foreign node after encapsulation.

Receiving a registration response and forwarding the registration response to the mobile node (column 2 lines 7-10). Since the foreign agent acts as a relay point for

registration purposes, it can also receive registration reply from the home agent and relay them to the mobile node.

Receiving packets of data from the home agent, each of the packets of data including the tunnel identifier (column 2 lines 45-47 and column 13 lines 30-35). The forwarding mechanism of tunneling anticipates receiving packets from the home agent because if there were no packets sent the mechanism will be rendered useless. Furthermore the visitor's table includes an interface to identify the tunnel and therefore it is accessed when the packet arrives at the foreign agent.

Subsequently, determining the connection for packets having the tunnel identifier (column 2 lines 36-47). In the tunneling process, packets of data are encapsulated into the frames of another network. Therefore, it is inherent that since the connection is established after encapsulation, the forwarding mechanism of tunneling carries the connection through.

10. In regards to claim 6, the foreign agent has a visitor table that along with the IP addresses of the home agent and the mobile node includes an interface that specifies a particular tunnel for a connection (column 13 lines 30-35).

11. In regards to claim 9, Leung discloses a method comprising:

Receiving a registration request (column 2 lines 8-12). The foreign agent relays registration request from the mobile node to the home node.

Receiving a data stream, the data stream associated with the registration request, the data stream including a plurality of packets (column 2 lines 8-12). The mobile IP protocol is implemented in the invention disclosed by Leung and therefore, it is inherent

that the transfer of data between networks and their respective elements is done through data packets (refer to figure 1 in Leung and column 1 lines 39-43).

Assigning an identifier to the data stream (column 2 lines 45-47). It is explicitly stated that the forwarding mechanism implement between the home and foreign agent is referred to as “tunneling”. Therefore, Leung anticipates assigning an ID, which in this instance is a tunnel ID.

Transmitting the registration request to a home agent, the registration request including the identifier (column 2 lines 7-12 and lines 18-20 and column 13 lines 30-36). The foreign agent updates a “visitor’s table” in regards to the mobile node. The visitor’s table has the IP addresses of the mobile node and home agent and an interface that specifies the tunnel used for forwarding packets.

Receiving return packets of information, the packets of return information including the identifier (column 2 lines 45-47 and column 13 lines 30-35). The forwarding mechanism of tunneling anticipates receiving packets from the home agent because if there were no packets sent the mechanism will be rendered useless. Furthermore the visitor’s table includes an interface to identify the tunnel and therefore it is accessed when the packet arrives at the foreign agent.

Translating the identifier into a connection and transmitting the return packets using the connection (column 2 lines 7-12 and lines 18-20 and column 13 lines 30-36). The foreign agent updates a “visitor’s table” in regards to the mobile node. The visitor’s table has the IP addresses of the mobile node and home agent and an interface that specifies the tunnel used for forwarding packets. Furthermore, since the table includes

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the IP addresses of the home agent and mobile nodes, the specific tunnel interface corresponds to the connections between the home agent and the mode.

12. In regards to claim 10, the foreign agent has a visitor table that along with the IP addresses of the home agent and the mobile node includes an interface that specifies a particular tunnel for a connection (column 13 lines 30-35).

13. In regards to claim 11, the home agent has a mobility binding table that includes the care of address for the mobile node and the tunnel interface to connect to the care of address; in this instance the care of address is the address of the foreign agent (column 16 lines 17-21).

14. In regards to claim 13, Leung discloses a system comprising:

A mobile node, a PDSN coupled to the mobile node and a home agent coupled to the PDSN (Refer to column 1 lines 39-43 and figure 1). The above-mentioned elements exist in a Mobile IP protocol and therefore, the foreign agent can be a PDSN since the transfer of data is done through packet switching.

The foreign agent relays registration requests between the mobile node and the foreign agent and therefore receives the registration requests from the mobile node and registration reply from the home agent (column 2 lines 7-12). Furthermore, the foreign agent has a visitor's table that keeps the IP addresses of the mobile node and the home agent and an interface that specifies a tunnel for the connection (column 13 lines 30-35). After the response is received from the home agent, the foreign agent through the information in the visitor's table can establish a connection between the home agent and the mobile node using the specific tunnel interface. Furthermore, when the home

agent receives packets from outside node wanting to communicate with the mobile node, it encapsulates the packets and forwards them to the foreign agent via the tunnel. The foreign agent can strip the encapsulation before forwarding the packets to the mobile node (column 2 lines 34-47). The encapsulation is a part of the tunneling mechanism and the stripping of encapsulation can be interpreted as extracting the tunnel ID.

The home agent has a mobility-binding table that includes the care of address for the mobile node and the tunnel interface to connect to the care of address; in this instance the care of address is the address of the foreign agent (column 16 lines 17-21).

15. In regards to claim 14, the registration request and reply packets include a Mobile-Home Authentication Extension that includes a type field (column 8 lines 32-38). The type field includes the type of extension and since the forwarding mechanism between the home and foreign agents is tunneling (column 2 lines 45-47), it is anticipated that the type field has some form to identify the specific tunnel.

16. In regards to claim 17, it is directed to a system that is used to carry out the method claimed in claim 1 and therefore, the pertinent disclosure by Leung used to reject claim 1 is also applicable to claim 17.

17. Claim 18 is further limiting the system claimed by claim 17. Claim 18 is also directed to a system that is used to carry out the method claimed in claim 2 and therefore, the pertinent disclosure by Leung used to reject claim 2 is applicable to claim 18.

18. Claim 19 is also further limiting the system claimed by claim 17. Claim 19 is also directed to a system that is used to carry out the method claimed in claim 3 and therefore, the pertinent disclosure by Leung used to reject claim 3 is applicable to claim 19.

19. In regards to claim 21, it is directed to a system that is used to carry out the method claimed in claim 5; therefore, the pertinent disclosure by Leung used to reject claim 5 is also applicable to claim 21.

20. With regards to claim 22, it is directed to a system that is used to carry out the method claimed in claim 9; therefore, that pertinent disclosure by Leung used to reject claim 9 is also applicable to claim 22.

21. With regards to claims 23 and 24, they are directed to a computer readable medium and a computer program used to carry out the method claimed by claim 1. Furthermore, Leung disclosed in his application that the network devices (i.e. home and foreign agents) are performing the Mobile IP functions that are implemented by software, hardware and/or firmware (column 1 lines 43-46). Therefore, it is inherent that the method disclosed by claim 1 can be implement using a computer program and a computer readable medium and hence, the pertinent disclosure by Leung used to reject claim 1 is also applicable to claims 23 and 24.

Claim Rejections - 35 USC § 103

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. Claims 7, 12, 15, 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung et al. (U.S. Patent 6466964 B1) as applied to claims 5 and 6 above, and further in view of Madour (U.S. Publication 20020021681 A1).

24. In regards to claim 7, Leung teaches all the limitations of claims 5 and 6 as stated above. Leung fails to teach the limitations of implementing the connection information from a Point-to-point protocol (PPP). Madour teaches the above-mentioned limitation (page 1, paragraph 11, 3rd sentence). It is explicitly stated that the mobile station stores PPP protocol context information and has a PPP connection with the foreign agent (first PDSN). It would have been obvious to one skilled in the art at the time of the invention was made to implement the connection information using the PPP protocol disclosed by Madour into the method disclosed by Leung. The proper motivation comes from Madour where it is stated "The possibility to handoff in a radio telecommunications network is obviously important; it is after all one of the features that make radio telecommunications mobile. Thus it can be seen that having a good handoff mechanisms is important in these networks, and there is a drive for more efficient handoff mechanisms" (page 1, paragraph 5, 1st two sentences).

25. In regards to claim 12, Leung teaches all the limitations of claim 9 as stated above. Leung fails to teach the limitations of implementing the connection information from a Point-to-point protocol (PPP). Madour teaches the above-mentioned limitation (page 1, paragraph 11, 3rd sentence). It is explicitly stated that the mobile station stores

PPP protocol context information and has a PPP connection with the foreign agent (first PDSN). It would have been obvious to one skilled in the art at the time of the invention was made to implement the connection information using the PPP protocol disclosed by Madour into the method disclosed by Leung. The proper motivation comes from Madour where it is stated "The possibility to handoff in a radio telecommunications network is obviously important; it is after all one of the features that make radio telecommunications mobile. Thus it can be seen that having a good handoff mechanisms is important in these networks, and there is a drive for more efficient handoff mechanisms" (page 1, paragraph 5, 1st two sentences).

26. In regards to claim 15, Leung teaches all the limitations of claim 13 as stated above. Leung fails to teach the limitations of implementing the connection information from a Point-to-point protocol (PPP). Madour teaches the above-mentioned limitation (page 1, paragraph 11, 3rd sentence). It is explicitly stated that the mobile station stores PPP protocol context information and has a PPP connection with the foreign agent (first PDSN). It would have been obvious to one skilled in the art at the time of the invention was made to implement the connection information using the PPP protocol disclosed by Madour into the system disclosed by Leung. The proper motivation comes from Madour where it is stated "The possibility to handoff in a radio telecommunications network is obviously important; it is after all one of the features that make radio telecommunications mobile. Thus it can be seen that having a good handoff mechanisms is important in these networks, and there is a drive for more efficient handoff mechanisms" (page 1, paragraph 5, 1st two sentences).

27. In regards to claim 16, Leung teaches all the limitation of claim 13 as stated above. Leung fails to teach the limitation of having a tunnel entry table and a PPP connection table. Madour teaches the above-mentioned limitation. The PDSN includes a memory unit used to store PPP context information which includes the connection information regarding the PPP protocol and the information is exchanged using a tunnel between the home and foreign PDSNs (page 4 paragraph 43, last line and Page 5, paragraph 52, sentences 2-4 and figure 6). Therefore, it would have been obvious to one skilled in the art to include a PDSN with the PPP context information memory unit disclosed by Madour into the system disclosed by Leung. The proper motivation comes from Madour where it is stated "The possibility to handoff in a radio telecommunications network is obviously important; it is after all one of the features that make radio telecommunications mobile. Thus it can be seen that having a good handoff mechanisms is important in these networks, and there is a drive for more efficient handoff mechanisms" (page 1, paragraph 5, 1st two sentences).

28. In regards to claim 20, Leung teaches all the limitation of claims 17 and 19 as stated above. Leung fails to teach the limitation of a tunnel entry indicating an entry in a PPP connection table. Madour teaches the above-mentioned limitation. The PDSN includes a memory unit used to store PPP context information which includes the connection information regarding the PPP protocol and the information is exchanged using a tunnel between the home and foreign PDSNs (page 4 paragraph 43, last line and Page 5, paragraph 52, sentences 2-4 and figure 6). Therefore, it would have been obvious to one skilled in the art to include a PDSN with the PPP context information

memory unit disclosed by Madour into the system disclosed by Leung. The proper motivation comes from Madour where it is stated "The possibility to handoff in a radio telecommunications network is obviously important; it is after all one of the features that make radio telecommunications mobile. Thus it can be seen that having a good handoff mechanisms is important in these networks, and there is a drive for more efficient handoff mechanisms" (page 1, paragraph 5, 1st two sentences).

29. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leung et al. (U.S. Patent 6466964 B1) as applied to claim 5 above, and further in view of Farinacci et al. (RFC 2748: Generic Routing Encapsulation (GRE)). Leung teaches all the limitations of claim 5 as stated above. Leung fails to teach the limitation of having a GRE header in the packet. Farinacci teaches the above-mentioned limitation. The system has a packet that needs to be encapsulated and delivered. The payload is first encapsulated in a GRE packet and the resulting packet is then encapsulated in some other protocol before being forwarded (page 2, 1st full paragraph, sentences 3-5). It would have been obvious to one skilled in the art to implement the header claimed in claim 5 and encapsulated the packet using the GRE protocol specified by Farinacci. The proper motivation comes from Farinacci where it is stated "It is the attempt of this protocol to provide a simple, general purpose mechanism which reduces the problem of encapsulation from its current size to a more manageable size" (page 2, 1st incomplete paragraph, 4th sentence).


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jay P. Patel whose telephone number is (571) 272-3086. The examiner can normally be reached on M-F 9:00 am - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q. Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jpp 1/6/2005
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